

ABSTRACT

5 The present invention provides methods for determining
the level of protein activity in a cell by: (i) measuring
abundances of cellular constituents in a cell in which the
10 activity of a specific protein is to be determined so that a
diagnostic profile is thus obtained; (ii) measuring
abundances of cellular constituents that occur in a cell in
response to perturbations in the activity of said protein to
obtain response profiles and interpolating said response
15 profiles to generate response curves; and (iii) determining a
protein activity level at which the response profile
extracted from the response curves best fits the measured
diagnostic profile, according to some objective measure. In
alternative embodiments, the present invention also provides
20 methods for identifying individuals having genetic mutations
or polymorphisms that disrupt protein activity, and methods
for identifying drug activity *in vivo* by determining the
activity levels of proteins which interact with said drugs.

25

30

35